

Serial No.: 10/590,580
Amendment and Response to Office Action
Reply to Office Action of February 21, 2008

Attorney Docket No.: 011460.00037

Amendments to the Drawings:

Attached are two (2) replacement sheets of drawings containing Figs. 1-2 and two (2) new sheets of drawings containing Figs. 3-4. The drawing sheets replace the originally filed drawing sheets containing Figs. 1 and 2, and contain new drawing sheets containing Figs. 3 and 4.

Attachment: Replacement Drawing Sheets (4 pages)

REMARKS

Reconsideration of the above-identified patent application, as amended herein, is respectfully requested.

This Amendment is in response to the Office Action dated February 21, 2008. Claims 1-15 are pending in this application. Claims 1, 3, 5, and 12 are amended herein. Of the claims, only claim 1 is independent.

Specification & Abstract

The specification is amended herein to describe the new drawing sheets. No new matter has been added.

The Abstract is amended herein to conform with 37 C.F.R. 1.72(b) and MPEP 608.01(b). No new matter has been added.

Drawings

Submitted are two (2) replacement drawing sheet containing Figs. 1-2 and two (2) new drawing sheets containing Figs. 3-4. The drawing sheets replace the originally filed drawing sheets containing Figs. 1 and 2, and contain new drawing sheets containing Figs. 3 and 4.

At section 2 of the Office Action, the Examiner objected to the drawings arguing that every feature of the claimed invention was not shown. Regarding the objection to the missing “curved posterior periphery,” Fig. 3 is attached to this Response containing features 130X, 140X, 150X, and 160X reflecting the curved posterior periphery. Regarding the objection to the missing “curvature that is variable” and “concave lateral supporting faces,” both of these elements are shown by features 130Y, 140Y, 150Y, and 160Y in new Fig. 4 attached herein. No new matter has been added.

With regard to the feature of an “overall parallelogram shape” of the anterior layer of the insert, see the below discussion related to the shape. Insert 10, shown in Fig. 1, clearly shows the overall parallelogram shape.

With regard to the “angles” required by claims 5, 11, and 14, the angle between lateral supporting faces 4B and 5B has been labeled α as an example of an angle between two successive lateral supporting faces (also, consecutive pairs of lateral framing supporting faces). No new matter has been added.

Claim Rejections - 35 USC § 112, 1st Paragraph

The Examiner rejected claims 10 and 11 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. In particular, the Examiner indicated that it is not clear how the shape of the large anterior face could be considered an “overall parallelogram shape” because the insert does not have parallel cutting edges. Applicant respectfully submits that the application as originally filed meets the requirements of 35 U.S.C. 112, first paragraph, and requests that the rejection of these claims be withdrawn, for the following reasons.

Figure 2 shows an embodiment with four pairs of V-shaped cutting edges, for example 13a and 13b. Each pair of cutting edges defines an overall direction of the pair, for instance a reference straight line between the two ends 130, 140 of the pair. These reference lines for each pair may form a parallelogram because when tracing the reference straight lines for opposite edge pairs, for example 13a and 13b opposite of 15a and 15b, these reference lines are parallel. Because the edges 13a and 13b define a V-shape wherein the ‘V’ is a large obtuse angle, the peak 131 of the V is at a short lateral distance from the reference straight line for that pair of edges. Thus, the descriptor “overall” is used to describe that the parallelogram shape may be imperfect due to the existence of this short lateral distance. Applicant submits that a person having ordinary skill in the art, upon reading the specification, would have no difficulty determining how the anterior face forms an “overall parallelogram shape.”

It is respectfully requested that the rejection of the claims under 35 U.S.C. 112, first paragraph, be withdrawn.

Claim Rejections - 35 USC § 112, 2nd Paragraph

The Examiner rejected claims 1-15 under 35 U.S.C. 112, second paragraph, as being indefinite.

Specifically, the Examiner argued that claim 1 recites a “reversible cutting insert,” but it is not clear how the insert is reversible considering the cutting edges are located only on the anterior side and the posterior side is used to support the insert in the toolholder. Applicant agrees with the Examiner that the meaning described in the specification is “indexable” and Applicant have amended claim 1 herein to change the descriptor “reversible” to “indexable.”

The Examiner argued that it is not clear how the anterior face can be considered an “overall parallelogram shape” as required by claim 10. Applicant directs the Examiner’s attention to Applicant’s above argument relating to the rejection under 35 USC § 112, 1st paragraph. Specifically, reference lines drawn from the ends of edge pairs, for example 13a and 13b in Fig. 2, form a parallelogram. This is referred to as an “overall parallelogram shape” because the angle formed by the V-shape of an edge pair alters the parallelogram formed by the reference straight lines.

The Examiner argued that the angle at which the consecutive pairs of lateral framing support faces are mutually inclined is not clear in claim 11. The Examiner argues that no point of reference has been given by which the angle may be determined. Claim 11 recites “. . . consecutive pairs of lateral framing support faces are mutually inclined at an angle ranging between 65 and 85 degrees” (emphasis added). Applicant respectfully disagrees with Examiner’s claim that the limitation is unclear, because the term highlighted term “mutually” describes that the lateral framing support faces are angled with respect to each other. This term is supported by the specification in several places including page 7, lines 1-4, “The walls of the seat are preferably mutually inclined at an angle ranging from 65 to 85 degrees, in order that an

insert of complementary shape might thus be tightly wedged therein to prevent any parasitic rotation" (emphasis added). Also, page 11, lines 13-16, "However, other values may be selected for the above acute angle, depending on the particular 15 application involved, a range of 65 to 85 degrees being considered as preferable."

The Examiner argued that the "two overlapping truncated pyramids" of claim 9 are not clearly defined. Additionally, the Examiner argues that it is unclear what the meaning of "different tapers" is in this context. A first truncated pyramid is described as being formed by lateral side surfaces 3B, 4B, 5B, 6B. *See Application at page 12, lines 3-9.* If, hypothetically, extended past the posterior surface 2, these lateral side surfaces 3B, 4B, 5B, 6B would eventually intersect forming a pyramid shape. Because the pyramid is intersected by posterior surface 2 and the lateral side surfaces 3B, 4B, 5B, 6B end at the posterior surface 2, the pyramid is best described as a truncated pyramid. This first truncated pyramid extends from the posterior portion 1B to the anterior portion 1A as is shown in Fig. 2. A second truncated pyramid of 8 sides, is formed by the anterior side areas 3A, 4A, 5A, 6A, and by the surfaces 3a and 3b, 4a and 4b, 5a and 5b, 6a and 6b that make up the anterior side areas 3A, 4A, 5A, 6A. *See Application at page 13, lines 4-25.* The base of this second pyramid is outlined by the four pairs of segments 13a and 13b, 14a and 14b, 15a and 15b, and 16a and 16b. This second pyramid is best described as truncated because the peak of the second pyramid is not visible due to the intersection of the second truncated pyramid by either the first truncated pyramid or the posterior surface 2 (depending on the shape of the second pyramid). The two truncated pyramids overlap one another, with an intersection at corner points 130, 140, 150, 160 forming the shape seen in the anterior portion 1A in Fig. 2.

In this context, it can be seen readily, for example in Fig. 2, that the first and second truncated pyramids may have differing tapers wherein the taper refers to the slope of the sides and edges of the respective pyramid. *See Application at page 14, lines 7-14.* The falling edges 131A, 141A, 151A, 161A of the second truncated pyramid may present a low slope (a first taper). On the other hand, the falling edges 130B, 140B, 150B, 160B of the first truncated

pyramid may exhibit a high slope (a second taper). Thus, the overlapping truncated pyramids may have differing tapers as specified in claim 9.

The Examiner argued that the subject matter of claim 12 is not clear. Claim 12 (lines 6-8) recites “a first specific number” and “a second specific number.” A “specific” number in this context describes that the tool is arranged for receiving a determined number of support sides of a cutting insert having another determined number of cutting edges. Each “specific” number is determined by the tool designer according to the application, and will meet the limitation so long as the stated inequality of the numbers is present.

With regards to the rejection of claim 14, Applicant directs the Examiner’s attention to Applicant’s arguments 35 USC § 112, second paragraph as related to claim 11 above. Specifically, the term “mutually inclined” was rejected as unclear because, it was argued, no point of reference was given. Applicant believes that the term “mutual” clearly describes that the angle the walls of the seat are measured with respect to one another.

It is respectfully submitted that the rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

Claim Rejections - 35 USC § 102

Claims 1, 2, 5, 7-10, 12, 13 and 15 were rejected under 35 U.S.C. 102(b) as being anticipated by EP 0548752 A1 to Satran et al. It is respectfully submitted that the rejection thereto be withdrawn for the following reasons.

Claim 1 recites, in pertinent part, an anterior layer which includes: (i) a large anterior face (labeled as feature 1 in Fig. 2); and (ii) mutually inclined lateral faces (for example, those labeled feature 3A, 4A, 5A, 6A in Fig. 2). The anterior face and the lateral faces cooperate to define the cutting edges (13a and 13b, 14a and 14b, 15a and 15b, 16a and 16b in Fig. 2). As can be seen in Fig. 1, in practice, the anterior face 1 will serve as a rake face to remove material from the workpiece, while the lateral faces are relief faces having no contact with the workpiece.

The Examiner has identified in Satran et al. a large anterior face (12) and mutually inclined lateral faces (X) as shown in the included figure. Applicant respectfully disagrees with the characterization of the items marked as X in the included figure as the mutually inclined lateral faces required by claim 1 of the present application. The areas marked X by the Examiner in Satran et al. are best characterized as anterior periphery areas that delimit the anterior face 12. Each area X is part of the large anterior face 12, and are not mutually inclined lateral faces. Consequently, required elements of claim 1, the mutually inclined lateral faces, are not described by Satran et al. and the rejection must be reversed.

Additionally, pending claim 1 recites cutting edges (shown, for example, as features 13a and 13b, 14a and 14b, 15a and 15b, and 16a and 16b in Fig. 2) that are mutually inclined in the direction of the front view profile.

Satran et al. does not teach mutually inclined cutting edges (example cutting edges are labeled 15a and 15b in Satran et al.) in the direction of the front view profile. Because figure 1 of Satran et al. is a perspective view, 15b is not seen as being in line with edge 15a since edge 15b is a ramp (Satran et al. col. 5, line 29) when viewed from a non-frontal direction. The front profile of the cutting insert of Satran et al. is seen in figure 2, and it is shown that edges 15a and 15b are on the same line (the angle between 15a and 15b is 180°). Thus, features 15a and 15b of the reference are not mutually inclined as required by the present application. In fact, edges 15a and 15b serve to limit the right hand bottom portion (with reference to the orientation of the figure) of the cutting insert defining the depth of cut.

The arrow drawn by the Examiner to demonstrate that the cutting edges are mutually inclined should be drawn as parallel to a cutting edge (e.g. 15a). When this is done, it can be seen that cutting edge 15b will also be parallel to cutting edge 15a when viewed from the frontal direction. Consequently, the front profile of Satran et al. exhibits only four straight lines with cutting edges and the requirement of claim 1 that the number of cutting edges is greater than the number of lateral faces is not met.

With regard to the Examiner's specific rejection of claim 7, relating to the truncated cone shape. The Examiner argued that the requirement of claim 7 (that the lateral framing supporting faces have an overall truncated cone shape) is met by the cutting insert of Satran et al. This argument serves to prove the inherent difference between Satran et al. and claim 1 (and dependent claims) of the present application. The faces of Satran et al. do seem to disclose an overall truncated pyramid shape. However, in the present inventive insert, only the posterior portion 1B (formed by the lateral faces) is described by a truncated pyramid shape, while the anterior portion 1A is described by another, more complicated, shape (e.g. overlapping truncated pyramids). This is an inherent necessity of the claim 1 requirement that "the posterior periphery comprises a smaller number of lateral framing supporting faces than the number of cutting edges." Further, Applicant notes that the Examiner does not specifically rely on Satran et al. to argue against the overlapping truncated pyramids of claim 8 due to the aforementioned lack of such a shape in Satran et al.

Claims 2, 5, 7-10, 12, 13, and 15 are dependent claims which depend from claim 1. Therefore, the rejection of claims 2, 5, 7-10, 12, 13, and 15 should be withdrawn for the same reasons as the rejection of claim 1.

Claim Rejections - 35 USC § 103

Claims 3, 4, 6, 11 and 14 were rejected under 35 U.S.C. 103(a) as being obvious over Satran et al.

With regard to the rejection of claims 3, 4, and 6, the Examiner argued that Satran et al. teaches the claimed invention--specifically the lateral faces (13) of a posterior periphery In fact, Satran et al. teaches only lateral faces 13 of a "whole depth" of the insert. As described above, the insert of Satran et al. teaches only an insert of a number of faces which remains constant throughout the profile of the insert. Satran et al. does not teach an insert having a posterior portion and a differing anterior portion. Because Satran et al. does not disclose lateral

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faces of a posterior periphery as required by claims 3, 4, and 6, the rejection of dependent claims 3, 4, and 6 should be withdrawn.

Conclusion

It is respectfully submitted that a full and complete response to the Office Action has been made. The claims are believed to be in condition for allowance. Early and favorable action is respectfully requested. If the Examiner has any further questions or concerns, the Examiner is invited to contact the Applicant's undersigned attorney/agent.

A Petition for Extension of Time and fee payment for one (1) month is being submitted herewith. If any other fees are occasioned by this Amendment & Response, the Director is hereby authorized to charge them to, or to credit, Deposit Account 08-2442 of the undersigned.

Respectfully submitted,
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